UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,925	12/28/2001	Troy Raymond Pesola	2001-094-NSC	2303

7590 07/13/2004	EXAMINER
STORAGE TECHNOLOGY CORPORATION	THAI, TUAN V
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ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _26 May 2004_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-33_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-33_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Part III   DETAILED ACTION

Response to Amendment

1.   This office action is in response to Applicant's communication filed May 26, 2004.   This amendment has been entered and carefully considered.   Claims 1-33 remain pending in the application.

2.   Applicant's arguments with respect to claims 1-33 have been considered but are not deemed to be persuasive.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b)   the invention was patented or described in a printed
      publication in this or a foreign country or in public use or
      on sale in this country, more than one year prior to the
      date of application for patent in the United States.

4.   Claims 1-6, 8-17, 19-22 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kikinis et al. (USPN: 5,964,848); hereinafter Kikinis.

   As per claims 1 and 12, Kikinis teaches the invention as

claimed including method and apparatus for managing copies of

virtual volume data comprises means for receiving an access

request directed to an original volume is taught EIDE adapter for

receiving access request directed to primary device 519 (e.g. see

figure 5, column 4, lines 60 et seq.; means for mapping the

access request to a secondary virtual volume is taught as the IDE

controller firmware for allowing the mapping of the access

requests to the secondary devices (e.g. see column 4, lines 67

bridging column 5, line 2; and means for performing the access

request on one or more physical volumes associated with the

secondary virtual volume is taught as CPU 511 for performing

access request one the secondary volume after the firmware

translation (e.g. see column 5, lines 3-5);

As per claims 2 and 13; Kikinis discloses the original

volume (primary device) is associated with one or more original

physical volumes (ST506 specification disk drive) and wherein one

or more original physical volumes (ST506 specification disk

drive) are different from one or more physical volumes (secondary

devices as either CD-ROM or cartridge tape drive (e.g. see figure

5, abstract, column 5, lines 3-21);

As per claims 3 and 14; the further limitation of wherein

the original volume is associated with one or more original

physical volumes and wherein the one or more original volumes are

the same as the one or more physical volumes is taught by Kikinis

since Kikinis discloses the original volume (primary device) is
associated with one or more original physical volumes (ST506
specification disk drive) and wherein one or more original
physical volumes can be implemented as other type of storage
media (e.g. see abstract, column 6, lines 25 et seq.);

As per claims 4 and 15; wherein the one or more original
physical volume are on the first type of data storage media
(ST506 specification disk drive), and wherein the one or more
physical volumes are on a second type of data storage media (CD-
ROM or cartridge tape drive) (e.g. see figure 5, abstract, column
3, lines 34-38; column 5, lines 17-21);

As per claims 5 and 16; wherein the first type of data
storage media and the second type of data storage media is one of
magnetic tape media, magnetic disk media, optical media, floppy
diskettes, CD-ROM media, DVD-ROM media, random access memory RAM,
and memory card media (e.g. see abstract, column 5, lines 17-21;
column 6, lines 25 et seq.);

As per claims 6 and 17; Kikinis discloses the primary device
519 having controller 521 for mapping and redirecting accesses to
the secondary devices 525, 531 and 537; also for communicating to
adapter 515 as well (e.g. see column 4, lines 65 et seq.);

As per claims 8 and 19; Kikinis discloses redirecting access
request to the secondary memory devices by issuing the IDE
command to select the secondary device when the physical volume

of the first secondary virtual volume is in idle state (e.g. see
column 5, lines 33 et seq.; also see column 6, lines 5-16);

As per claims 9 and 20; wherein the first secondary virtual
volume includes physical volumes on a first media type and the
second secondary virtual volume includes physical volumes on a
second media type (e.g. see abstract, column 5, lines 17-21;
column 6, lines 25 et seq.);

As per claims 10 and 21; the further limitation of wherein
the means for performing the access request on one or more
physical volume associated with the secondary virtual volume
includes means for converting the access request to a format
suitable for the second media type is taught by Kikinis; for
example, Kikinis teaches that firmware for the microcontroller 27
enables the controlling of the bus interface of CD-ROM 25
according to established protocols for IDE devices, the firmware
also translates three-part data addresses transmitted from CPU 11
into corresponding CD-ROM sector addresses (e.g. see column 3,
lines 61 et seq.);

As per claims 11 and 22; Kikinis discloses the access
request is received utilizing EIDE adapter 515 on bus 513 through
cable 517 (e.g. see figure 5); and wherein the means for
performing the access request one or more physical volume
associated with the secondary virtual volume includes means for
converting (EIDE firmware) the access request from the first

communication protocol to a second communication protocol (e.g.

see column 5, line 58 bridging column 6, line 4).

Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms

the basis for all obviousness rejections set forth in this Office

action:

(a) A patent may not be obtained though the invention is not identically

   disclosed or described as set forth in section 102 of this title, if the

   differences between the subject matter sought to be patented and the prior

   art are such that the subject matter as a whole would have been obvious at

   the time the invention was made to a person having ordinary skill in the

   art to which said subject matter pertains. Patentability shall not be

   negatived by the manner in which the invention was made.

6.   Claims 7, 18 and 23-33 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Kikinis et al. (USPN: 5,964,848);

hereinafter Kikinis.

      As per claims 7 and 18, Kikinis discloses the invention as

claimed, detailed above with respect to claims 1 and 12.

Kikinis, however, does not particularly disclose the redirecting

of access request *in response to a fault in a physical volume of*

the first secondary virtual volume. It should be noted that

Kikinis in fact discloses redirecting access request to the

secondary memory devices by issuing the IDE command to select the

secondary device when the physical volume of the first secondary

virtual volume is in idle state (e.g. see column 5, lines 33 et seq.). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the current invention was made to readily recognize (a) the idle state of the primary device is read to include the fault state as being claimed, and (b) by redirecting access request to other storage media(s) when a failure or fault in the primary device, it would ensure the continuous data operational cycle without introducing any additional delay or data corruption in the system, therefore system liability is greatly enhanced.

As per claims 23-33, Kikinis discloses the invention as claimed, detailed above with respect to claims 1-11 and 12-22; Kikinis however does not particularly disclose a computer-readable medium of instructions to be implemented on a computer as being claimed in claims 23-33. However, one of ordinary skill in the art would have recognized that computer readable medium (i.e., floppy, cd-rom, etc.) carrying computer-executable instructions for implementing a method, because it would facilitate the transporting and installing of the method on other systems, is generally well-known in the art. For example, a copy of the Microsoft Windows operating system can be found on a CD-ROM from which Windows can be installed onto other systems, which is a lot easier that running a long cable or hand typing the software onto another system. The examiner takes Official Notice

of this teaching.   Therefore, it would have been obvious to put

Kikinis's program on a computer readable medium, because it would

facilitate the transporting, installing and implementing of

Kikinis's program on other systems.

7.   As per remark, Applicant's counsel contended that (a) "The

cited reference does not teach the claimed limitations of

receiving an access request directed to an original virtual

volume; mapping the access request to a secondary virtual volume

as claimed in claim 1 (page 9, first paragraph); (b) the passage

cited by Examiner does not teach "redirecting access request to

the secondary memory device" as Examiner characterizes Kikinis

(page 10, sixth paragraph bridging page 11, fifth paragraph); and

(c) the cited reference does not teach or suggest the claimed

limitations in the context of virtual volumes (page 12, first

paragraph).

     With respect to (a) first of all, Examiner would like to

emphasize that receiving access request directed to an original

volume is taught as EIDE adapter which receives access request

direct to the primary device 519 (column 4, lines 60 et seq.);

noting that the controller firmware is the tranlating protocol

which allows mapping of the access requests to multiple secondary

IDE devices, for example, Kikinis clearly disclose that each of

the secondary IDE device having an EIDE microcontroller and

firmware to translate between the EIDE protocol and the protocol
of the particular device (e.g. see column 5, lines 19 et seq.);
mapping process is part of the translating protocol which is
inherently taught by Kikinis. With respect to (b); "redirecting
access request to the secondary memory device" is taught by
Kikinis since, as cited by the Examiner in the previous action,
Kikinis clearly discloses the EIDE firmware allows the
translation and mapping process to occur wherein it monitors the
computer bus for a request to communicate with a secondary
devices, and if no request is detected, communication with the
primary is maintained; and if there is a request on the bus for
communication with a secondary device, the EIDE will send a
command on the peripheral cable to deactivate the primary and
enable the secondary devices (the act of redirecting) (e.g. see
column 4, lines 58 et seq.). With respect to (c); Examiner would
like to emphasize that in considering a 35 USC 103 rejection, it
is not strictly necessary that a reference or references
explicitly suggest the claimed invention (this is tantamount to a
35 USC 102 reference if the modifications would have been obvious
to those of ordinary skill in the art. It has been held that the
test of obviousness is not whether the features of a secondary
reference may be bodily incorporated into the primary references'
structure, nor whether the claimed invention is expressly
suggested in any one or all of the references; rather, the test

is what the combined teachings of the reference would have

suggested to those of ordinary skill in the art.   See In re

Keller et al., 208 U.S.P.Q 871.   In this particular instance,

the virtual volume concept is taught by Kikinis, and being

equivalent to the context of the non-conforming peripheral

devices (abstract); in addition, the fault state is considered

and being read-on by the idle state that is taught by Kikinis

(column 5, lines 33 et seq.).

8.   Applicant's arguments filed May 26, 2004 have been fully

considered but they are not deemed to be persuasive.

9.   **THIS ACTION IS MADE FINAL**. Applicant is reminded of the
extension of time policy as set forth in 37 C.F.R. § 1.136(a).
      A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL
ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS
ACTION.   IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS
OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION
IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED
STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE
ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE
PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE
MAILING DATE OF THE ADVISORY ACTION.   IN NO EVENT WILL THE
STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM
THE DATE OF THIS FINAL ACTION.

10. Any inquiry concerning this communication or earlier

communications from the examiner should be directed to Tuan V.

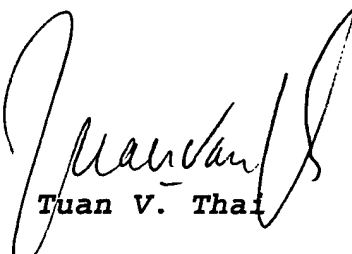Thai whose telephone number is (703) 305-3842.   The examiner can

normally be reached on from 6:30 A.M. to 4:00 P.M..

If attempts to reach the examiner by telephone are
unsuccessful, the examiner's supervisor, Mathew M. Kim can be
reached on (703)-305-3821. The fax phone number for the
organization where this application or proceeding is assigned is
703-872-9306.

Information regarding the status of an application may be
obtained from the Patent Application Information Retrieval (PAIR)
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access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

TVT/July 11, 2004

Tuan V. Thai

PRIMARY EXAMINER
Group 2100